

# SAFETY DATA SHEET

Gommamica® Powerfill Green 2



## Section 1: identification of the substance/mixture and of the company / undertaking

### 1.1. Product identifier

**Mixture identification:** rubber granulate obtained from the treatment of end-of-life-tires (PFU), composed of vulcanized rubber elastomer and with a particle size range of 0.8 – 2.5 mm; ennobled with polyurethane resin, organic and inorganic pigments.

**Trade name:** GOMMAMICA® POWERFILL GREEN 2

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

**Recommended uses:** infill in artificial turf and equestrian fields, anti-trauma flooring, additive for bituminous conglomerates and bitumens, component of outdoor floors, component of products for automotive sector, component of products for footwear sector, component of products for gardening sector, component of products for sports sector, component of building products, manufacture of various types of products.

**Uses advised against:** rubber granulate is specifically designed for the uses recommended by this safety data sheet and it contains substances that may be incompatible with other uses.

Uses not specifically mentioned in this safety data sheet are not recommended.

### 1.3. Details of the supplier of the safety data sheet

**Supplier:**

Elastrade s.r.l.  
Via dei Termini 18/A  
24040 Osio Sopra (BG) - Italy

**E-mail for safety data sheet:** info@gommamica.it

### 1.4. Emergency telephone number

1. Azienda ospedaliera "Antonio Cardarelli", III Servizio di anestesia e rianimazione, via Antonio Cardarelli 9, Napoli 081-5453333
2. Azienda ospedaliera universitaria Careggi, U.O. Tossicologia medica, via Largo Brambilla 3, Firenze; 055-7947819
3. Centro nazionale d'informazione tossicologica, IRCCS Fondazione Salvatore Maugeri Clinica del lavoro e della riabilitazione, via Salvatore Maugeri 10, Pavia; 0382-24444
4. Azienda ospedaliera Niguarda Ca' Grande, piazza Ospedale Maggiore 3, Milano; 02-66101029
5. Azienda ospedaliera "Papa Giovanni XXIII", tossicologia clinica, Dipartimento di farmacia clinica e farmacologia, piazza OMS 1, Bergamo; 800883300
6. Policlinico "Umberto I", PRGM tossicologia d'urgenza, viale del Policlinico 155, Roma; 06-49978000
7. Policlinico "Agostino Gemelli", Servizio di tossicologia clinica, largo Agostino Gemelli 8, Roma; 06-3054343
8. Azienda ospedaliera universitaria riuniti, viale Luigi Pinto 1, Foggia; 800183459
9. Ospedale pediatrico Bambino Gesù, Dipartimento emergenza e accettazione DEA, piazza Sant'Onofrio 4, Roma; 06-68593726
10. Azienda ospedaliera universitaria integrata (AOUI) di Verona sede di Borgo Trento, piazzale Aristide Stefani, 1 - 37126 Verona». 8000118558

## Section 2: hazards identification

### 2.1. Classification of the substance or mixture

The mixture does not meet the criteria for classification in accordance with Regulation (EC) n. 1272/2008.

A safety data sheet is provided on request because, in the mixture, there could be substances for which Union

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workplace exposure limits have been assigned and substances that are dangerous for human health in concentration greater than 1% by weight.

### 2.2. Label elements

The product is not classified as dangerous according to Regulation EC 1272/2008 (CLP).

**Hazard pictograms:** n.a.

**Hazard statements:** n.a.

**Precautionary statements:** n.a.

**Special Provisions:** n.a.

### 2.3. Other hazards

**Substances vPvB:** none in concentration greater than 0.1%

**Substances PBT:** none in concentration greater than 0.1%

**Other Hazards:**

Based on the criteria established by Regulation (EC) n. 1272/2008, this mixture is not classified dangerous to health.

Based on the criteria established by Regulation (EC) n. 1272/2008, this mixture is not classified dangerous to environment.

Based on the criteria established by Regulation (EC) n. 1272/2008, this mixture is not classified dangerous with physical and chemical hazards.

If burned it can generate toxic fumes.

## Section 3: composition/information on ingredients

### 3.1. Substances

Not applicable

### 3.2. Mixtures

Hazardous components according to Reg. (CE) n. 1272/2008 and components with a concentration of  $\geq 1\%$  and for which Union workplace exposure limits have been assigned.

Q.ty	Name	Identification number	Classification according to Reg. (CE) n. 1272/2008
$\geq 25\%$ - $\leq 35\%$	Carbon black*	CAS: 1333-86-4 EC: 215-609-9	Not classified
$\geq 2.5\%$ - $\leq 4\%$	Distillates (petroleum), solvent-dewaxed heavy paraffinic	CAS: 64742-65-0 EC: 265-169-7	H350 cat. 1B (Note L**)
	Distillates (petroleum), hydrotreated heavy paraffinic	CAS: 64742-54-7 EC: 265-157-1	H350 cat. 1B (Note L**)
	Extracts (petroleum), solvent-refined heavy paraffinic distillate solvent	CAS: 68783-04-0 EC: 272-180-0	H350 cat. 1B (Note L**)
	Distillates (petroleum), solvent-refined heavy paraffinic	CAS: 64741-88-4 EC: 265-090-8	H350 cat. 1B (Note L**)
	Distillates (petroleum), hydrotreated heavy naphthenic	CAS: 64742-52-5 EC: 265-155-0	H350 cat. 1B (Note L**)

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≥ 1.5% - ≤ 2.5%	Sulfur	CAS: 7704-34-9 EC: 231-722-6	H315
≥ 1% - ≤ 2.0%	Zinc oxide	CAS: 1314-13-2 EC: 215-222-5	H400 H410
≥ 0.5% - ≤ 2%	Silicon dioxide (Silica)*	CAS: 7631-86-9 EC: 231-545-4	Not classified
≥ 1% - ≤ 2%	Isocyanic acid, polymethylenepolyph nylene ester, polymer with methyloxirane polymer with oxirane ether with 1,2,3- propanetriol (3:1)	CAS: 112898-48-3 EC: polimero	H334 H317
≥ 0.8% - ≤ 1.5%	Formaldehyde, oligomeric reaction products with aniline and phosgene	CAS: 32055-14-4 EC: 500-079-6	H332 H315 H319 H334 H317 H351 H335 H373
≥ 0.9% - ≤ 1.1%	Zinc sulphide*	CAS: 1314-98-3 EC: 215-251-3	Not classified

\* substances that are not classified as dangerous according to Reg. (CE) n. 1272/2008 but for which Union workplace exposure limits have been assigned.

\*\* Note L Annex 6 Reg. (CE) 1272/2008: "The classification as carcinogen need not apply if it can be shown that the substance contain less than 3% DMSO extract as measured by IF 346 "Determination of polycyclic aromatics in unused lubricating base oils and asphaltene free petroleum fractions – Dimethyl sulphoxide extraction refractive index method"" Institute of Petroleum, London. This note applies only to certain complex oil-derived substances in Part 3.

Full text of hazard statements mentioned in this section, can be find in section 16.

## Section 4: first aid measures

### 4.1. Description of first aid measures

Oral and eye contact are to be considered only through indirect ways, following a skin contact with the mixture.

**In case of skin contact:** mild irritations may occur in predisposed individuals; wash immediately with plenty of running water and eventually wash the areas of the body that have come into contact with the mixture. If irritation persists, consult a doctor.

**In case of eye contact:** wash immediately with plenty of running water, do not rub and consult a doctor. Eventually, remove contact lenses.

**In case of ingestion:** do not cause vomit, wash mouth with water and, in case of nausea, contact the poison control center.

**In case of inhalation:** exposure to high concentrations of combustion fumes and/or dust can cause breathing difficulties; move the individual to a well ventilated place. In case of nausea, contact a doctor.

### 4.2. Most important symptoms and effects, both acute and delayed

The main effects that can occur are:

- **Skin contact effects:** irritation;
- **Eye contact effects:** foreign body sensation, redness and tearing;
- **Ingestion effects:** illness, nausea, vomit;
- **Inhalation effects:** illness and breathing difficulties in case of high concentration of fine powders or

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combustion fumes.

Chronic effects data are not available.

### 4.3. Indication of any immediate medical attention and special treatment needed

In case of illness, in case of exposure to combustion fumes, in case of exposition to combustion fumes, in case of prolonged exposition to high concentrations of respirable fraction in non-ventilated environments and with symptoms of asphyxiation, in case of skin irritation after a direct or prolonged contact and in case of ingestion, consult immediately a doctor (if it is possible, show this safety data sheet).

## Section 5: firefighting measures

### 5.1. Extinguishing media

**Suitable extinguishing media:** carbon dioxide (CO<sub>2</sub>), polyvalent chemical powder, high expansion foam for indoor environments

**Unsuitable extinguishing media:** none particularly.

### 5.2. Special hazards arising from the substance or mixture

Do not inhale the gases produced by the explosion and combustion.

Combustion produces heavy smoke that irritates the respiratory tract and eyes.

In case of combustion, toxic fumes containing sulfur oxide and dioxins.

### 5.3. Advice for firefighters

Prevent surface water and groundwater from water of fire extinguishers.

Wear complete equipment and gas masks with self-contained breathing apparatus.

## Section 6: accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

No particular risk due to accidental dispersion are expected.

**For those who do not intervene directly:** wear personal protective equipment, goggles, gloves, protective clothing and filter mask (at least FFP1). Move people to safe place. Consult protective measures in sections 7 and 8.

**For those who intervene directly:** wear personal protective equipment, goggles, gloves, protective clothing and filter mask (at least FFP1). Move people to safe place. Consult protective measures in sections 7 and 8.

### 6.2. Environmental precautions

Do not disperse in the environmental matrices.

Avoid dispersal of dust in the atmosphere.

Avoid sources of ignition.

### 6.3. Methods and material for containment and cleaning up

**For containment:** if bulk material is used, adopt suitable containment measures (e.g. containment curb). Avoid the production of dust.

**For decontaminatio:** use vacuum cleaners for removal.

### 6.4. Reference to other sections

See sections 8 and 13.

## Section 7: handling and storage

### 7.1. Precautions for safe handling

Avoid eye and skin contact.

Avoid excessive dust formation and inhalation of dust.

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Avoid product manipulation near ignition sources and free flame.

See section 8 for personal protective equipment.

**Advice on general occupational hygiene:** use good cleaning practices during storage, transfer and handling. In any case, wash hands after the product handling. Do not eat or drink at work, remove work clothing and protective equipment before enter in the relaxation areas.

### 7.2. Conditions for safe storage, including any incompatibilities

Store the mixture in its original, intact and labeled packaging, in adequately ventilated place and away from ignition sources.

Keep away from food, drink and feed.

**Incompatible materials:** none in particular.

### 7.3. Specific end use(s)

Raccomandations in this section (sub-sections 7.1 and 7.2) refer only to the recommended uses identified in sub-section 1.2.

Different uses from those indicated are not controlled and are not subject of this document.

## Section 8: exposure controls/personal protection

### 8.1. Control parameters

<b>Carbon Black (CAS 1333-86-4)</b> Tipo OEL: ACGIH – TWA(8h): 3 mg/m <sup>3</sup> Note: A3, bronchitis
<b>Ossido di zinco (CAS 1314-13-2)</b> Tipo OEL: ACGIH - TWA(8h): 2 mg/m <sup>3</sup> - STEL: 10 mg/m <sup>3</sup> - Note: (R) - Metal fume fever
<b>1,2-Dicloroetano (CAS 107-06-2)</b> Tipo OEL: UE TWA(8h): 8,2 mg/m <sup>3</sup> , 2 ppm (Substantial contribution to the total body burden via dermal exposure possible Bold-type: Binding Occupational Exposure Limit Value (BOELV)) Tipo OEL: ACGIH – TWA(8h): 10 ppm – Note: A4, liver dam, nausea
<b>1,2 Dicloropropano (CAS 78-87-5)</b> Tipo OEL: ACGIH – TWA(8h): 10 ppm – Note DSEN, A4; MW 112.99, URT irr, body weight eff
<b>2-(2-Butossietossi)etano (CAS 112-34-5)</b> Tipo OEL: UE TWA (8h): 10 ppm, 67,5 mg/m <sup>3</sup> – STEL: 15 ppm, 101,2 mg/m <sup>3</sup> (15 minutes average value Bold-type: Indicative Occupational Exposure Limit Value (IOELV)) Tipo OEL: ACGIH – TWA (8h): 10 ppm(IFV) – MW: 162.23; Hematologic, liver and kidney eff Tipo OEL: Italia: TWA (8h): 10 ppm, 67,5 mg/m <sup>3</sup> – STEL: 15 ppm, 101,2 mg/m <sup>3</sup>
<b>2,6-di-tert-butil-p-cresolo (CAS 128-37-0)</b> Tipo OEL: ACGIH – TWA(8h): 2 mg/m <sup>3</sup> (IFV) Note: A4 – MW: 220.34; Urt irr
<b>4,4'-isopropiledendifenolo (CAS 80-05-7)</b> Tipo OEL: UE: TWA (8h): 2 mg/m <sup>3</sup> (Inhalable fraction Bold-type: Indicative Occupational Exposure Limit Value (IOELV)) Tipo OEL: Italia: TWA (8h): 10 mg/m <sup>3</sup> (Inhalable fraction)
<b>4-metilpentan-2-one (CAS 108-10-1)</b> Tipo OEL: UE TWA (8h): 20 ppm, 83 mg/m <sup>3</sup> – STEL: 50 ppm, 208 mg/m <sup>3</sup> (15 minutes average value Bold-type: Indicative Occupational Exposure Limit Value (IOELV)) Tipo OEL: ACGIH – TWA (8h): 20 ppm; STEL: 75 ppm; Note: A3, BEI – MW: 100.16; urt irr, dizziness, headache Tipo OEL: Italia: TWA (8h): 20 ppm, 83 mg/m <sup>3</sup> – STEL: 50 ppm, 208 mg/m <sup>3</sup>
<b>Acetonitrile (CAS 75-05-8)</b> Tipo OEL: UE TWA (8h): 40 ppm, 70 mg/m <sup>3</sup> Tipo OEL: ACGIH – TWA (8h): 20 ppm; Note: skin, A4; MW: 41.05 – Irt irr Tipo OEL: Italia: TWA (8h): 20 ppm, 35 mg/m <sup>3</sup>
<b>Acido stearico (CAS 57-11-4)</b>

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Tipo OEL: ACGIH – TWA (8h): 10 mg/m <sup>3</sup> (I), 3 mg/m <sup>3</sup> (R); Note: A4; MW: varies; Irt irr
<b>Alluminio in polvere (CAS 7429-90-5)</b> Tipo OEL: ACGIH – TWA (8h): 1 mg/m <sup>3</sup> (R); Note: A4; MW: 26.98; pneumoconiosis, Irt irr; MW: varies; neurotoxicity
<b>Antimonio (CAS 7440-36-0)</b> Tipo OEL: ACGIH – TWA (8h): 0.5 mg/m <sup>3</sup> ; MW: 121.75; skin and urt irr
<b>Arsenico (CAS 7440-38-2)</b> Tipo OEL: ACGIH – TWA (8h): 0.01 mg/m <sup>3</sup> ; Note: A1, BEI; MW: 74.92; lung cancer
<b>Bario (CAS 7440-39-3)</b> Tipo OEL: UE TWA (8h): 0.5 mg/m <sup>3</sup> Tipo OEL: ACGIH – TWA (8h): 0,5 mg/m <sup>3</sup> ; Note: A4; MW: 137.30; eye, skin and gi irr, muscular stimulation Tipo OEL: Italia: TWA (8h): 0,5 mg/m <sup>3</sup>
<b>Benzene (CAS 71-43-2)</b> Tipo OEL: UE TWA (8h): 1 ppm, 3.25 mg/m <sup>3</sup> (Substantial contribution to the total body burden via dermal exposure possible Bold-type: Binding Occupational Exposure Limit Value (BOELV)) Tipo OEL: ACGIH – TWA (8h): 0.5 ppm; STEL: 2.5 ppm; Note: skin, A1, BEI; leukemia Tipo OEL: Italia: TWA (8h): 1 ppm, 3.25 mg/m <sup>3</sup>
<b>Benzo(a)antracene (CAS 56-55-3)</b> Tipo OEL: ACGIH – TWA (8h): - (L); Note: A2, BEI <sub>P</sub> ; MW: 228.30; skin cancer
<b>Benzo(a)pirene (CAS 50-32-8)</b> Tipo OEL: ACGIH – TWA (8h): - (L); Note: A2, BEI <sub>P</sub> ; MW: 252.30; cancer
<b>Benzo(e)acefenantrilene (CAS 205-99-2)</b> Tipo OEL: ACGIH – TWA (8h): - (L); Note: A2, BEI <sub>P</sub> ; MW: 252.30; cancer
<b>Berillio (CAS 7440-41-7)</b> Tipo OEL: ACGIH – TWA (8h): 0.00005 mg/m <sup>3</sup> (I); Note: A1, skin, DSEN, RSEN; MW: 9.01; beryllium sens, chronic beryllium disease
<b>Bis(2-etilesil)ftalato (CAS 117-81-7)</b> Tipo OEL: ACGIH – TWA (8h): (5 mg/m <sup>3</sup> ); Note: A3; MW: 390.54; (LRT irr)
<b>Cicloesilammia (CAS 108-91-8)</b> Tipo OEL: ACGIH – TWA (8h): 10 ppm; Note: A4; MW: 99.17; urt and eye irr
<b>Crisene (CAS 218-01-9)</b> Tipo OEL: ACGIH – TWA (8h): - (L); Note: A3, BEI <sub>P</sub> ; MW: 228.30; cancer
<b>Cromo (CAS 7440-47-3)</b> Tipo OEL: UE TWA (8h): 2 mg/m <sup>3</sup> Tipo OEL: ACGIH – TWA (8h): 0.5 mg/m <sup>3</sup> ; MW: varies; resp tract irr Tipo OEL: Italia: TWA (8h): 0.5 mg/m <sup>3</sup>
<b>Cromo III (CAS 16065-83-1)</b> Tipo OEL: ACGIH – TWA (8h): 0.003 mg/m <sup>3</sup> (I); Note: A4, DSEN, RSEN; MW: varies; resptract irr, asthma
<b>Cromo VI (CAS 18540-29-9)</b> Tipo OEL: ACGIH – TWA (8h): 0.0002 mg/m <sup>3</sup> ; STEL: 0.0005 mg/m <sup>3</sup> ; Note: A1, skin, DSEN, RSEN, BEI; MW: varies; lung and sinonasal cancer, resp tract irr, asthma
<b>Dibutil ftalato (CAS 84-74-2)</b> Tipo OEL: ACGIH – TWA (8h): 5 mg/m <sup>3</sup> ; MW: 278.34; testicular dam, eye and urt irr
<b>Dietil ftalato (CAS 84-66-2)</b> Tipo OEL: ACGIH – TWA (8h): 5 mg/m <sup>3</sup> ; Note: A4; MW: 222.23; eye and urt irr
<b>Diisocianato di 4-4'-metilendifenile (CAS 101-68-8)</b> Tipo OEL: ACGIH – TWA (8h): 0.005 ppm; MW: 250.26; resp. sens.
<b>Dimetil ftalato (CAS 131-11-3)</b> Tipo OEL: ACGIH – TWA (8h): 5 mg/m <sup>3</sup> ; MW: 194.19; eye and urt irr
<b>Dimetilnitrosammia (CAS 62-75-9)</b>

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Tipo OEL: ACGIH – TWA (8h): - (L); Note: A3, skin; MW: 74.08; liver and kidney cancer, liver dam
<b>Disolfuro di carbonio (CAS 75-15-0)</b> Tipo OEL: UE TWA (8h): 5 ppm, 15 mg/m <sup>3</sup> Tipo OEL: ACGIH – TWA (8h): 1 ppm; Note: skin, A4,BE1; MW: 76.14; pns impair Tipo OEL: Italia: TWA (8h): 1 ppm, 3 mg/m <sup>3</sup>
<b>Disulfiram (CAS 97-77-8)</b> Tipo OEL: ACGIH – TWA (8h): 2 mg/m <sup>3</sup> ; Note: A4; MW: 296.54; vasodilation, nausea
<b>Etanolo (CAS 64-17-5)</b> Tipo OEL: ACGIH – STEL: 1000 ppm; Note: A3; MW: 46.07; urt irr
<b>Fenolo (CAS 108-95-2)</b> Tipo OEL: UE TWA (8h): 2 ppm, 8 mg/m <sup>3</sup> ; STEL: 4 ppm, 16 mg/m <sup>3</sup> (15 minutes average value Bold-type: Indicative Occupational Exposure Limit Value (IOELV)) Tipo OEL: ACGIH – TWA (8h): 5 ppm; Note: skin, A4,BE1; MW: 94.11; urt irr, lung dam, cns impair Tipo OEL: Italia: TWA (8h): 2 ppm, 8 mg/m <sup>3</sup> ; STEL: 4 ppm, 16 mg/m <sup>3</sup>
<b>Formaldeide (CAS 50-00-0)</b> Tipo OEL: ACGIH – TWA: 0.1 ppm; STEL: 0.3 ppm; Note: DSEN, RSEN, A1; MW: 30.03; urt and eye irr, urt cancer
<b>Manganese (CAS 7439-96-5)</b> Tipo OEL: UE TWA (8h): 0.2 mg/m <sup>3</sup> (Inhalable fraction); 0.05 mg/m <sup>3</sup> (Respirable fraction Bold-type: Indicative Occupational Exposure Limit Value (IOELV)) Tipo OEL: ACGIH – TWA (8h): 0.02 mg/m <sup>3</sup> (R); Note: A4; MW: 54.94; cns impair
<b>Mercurio (CAS 7439-97-6)</b> Tipo OEL: UE TWA (8h): 0.02 mg/m <sup>3</sup> (including mercuric oxide and mercuric chloride Bold-type: Indicative Occupational Exposure Limit Value (IOELV)) Tipo OEL: ACGIH – TWA (8h): 50.01 mg/m <sup>3</sup> ; STEL: 0.03 mg/m <sup>3</sup> ; Note: skin; MW: varies; cns and pns impair, kidney dam Tipo OEL: Italia: TWA (8h): 0.02 mg/m <sup>3</sup> (skin; when monitoring exposure to mercury and its inorganic divalent compounds, it should taken into account the related techniques of biological monitoring that complete the limit values of occupational exposure)
<b>Metanolo (CAS 6756-1)</b> Tipo OEL: UE TWA (8h): 200 ppm, 260 mg/m <sup>3</sup> Tipo OEL: ACGIH – TWA (8h): 200 ppm; STEL: 250 ppm; Note: skin, BE1; MW: 32.04; headache, eye dam, dizziness, nausea Tipo OEL: Italia: TWA (8h): 200 ppm, 260 mg/m <sup>3</sup>
<b>Molibdeno (CAS 7439-98-7)</b> Tipo OEL: ACGIH – MW: 95.95; lrt irr
<b>Naftalene (CAS 91-20-3)</b> Tipo OEL: ACGIH – TWA (8h): 10 ppm; Note: skin, A3, BE1; MW: 128.19; urt irr, cataracts, hemolytic anemia Tipo OEL: Italia: TWA (8h): 10 ppm, 50 mg/m <sup>3</sup>
<b>Nichel (CAS 7440-02-0)</b> Tipo OEL: ACGIH – TWA (8h): 1.5 mg/m <sup>3</sup> (l); Note: A5; MW: 58.71; dermatitis, pneumoconiosis
<b>N-metil-2-pirrolidone (CAS 872-50-4)</b> Tipo OEL: UE TWA (8h): 10 ppm, 40 mg/m <sup>3</sup> ; STEL: 20 ppm, 80 mg/m <sup>3</sup> (15 minutes average value Bold-type: Indicative Occupational Exposure Limit Value (IOELV)) Tipo OEL: Italia: TWA (8h): 10 ppm, 40 mg/m <sup>3</sup> ; STEL: 20 ppm, 80 mg/m <sup>3</sup> (skin)
<b>Ossido di magnesio (CAS 1309-48-4)</b> Tipo OEL: ACGIH – TWA (8h): 10 mg/m <sup>3</sup> ; Note: A4; MW: 40.32; urt, metal fume fever
<b>Ossido di titanio (CAS 13463-67-7)</b> Tipo OEL: ACGIH – TWA (8h): 10 mg/m <sup>3</sup> ; Note: A4; MW: 79.90; lrt irr
<b>Xileni (isomeri CAS 95-47-6)</b>

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Tipo OEL: UE TWA (8h): 50 ppm, 221 mg/m <sup>3</sup> ; STEL: 100 ppm, 442 mg/m <sup>3</sup> (15 minutes average value Bold-type: Indicative Occupational Exposure Limit Value (IOELV)) Tipo OEL: ACGIH – TWA (8h): 100 ppm; STEL: 150 ppm; Note: A4, BEI; MW: 106.16; urt and eye irr, cns impair Tipo OEL: Italia: TWA (8h): 50 ppm, 221 mg/m <sup>3</sup> (skin); STEL: 100 ppm, 442 mg/m <sup>3</sup> (skin and 15 minutes average value)
<b>Piombo (CAS 7439-92-1)</b> Tipo OEL: UE TWA (8h): 0.15 mg/m <sup>3</sup> (Inhalable fraction Bold-type: Binding Occupational Exposure Limit Value (BOELV)) Tipo OEL: ACGIH – TWA (8h): 0.05 mg/m <sup>3</sup> ; Note: A3, BEI; MW: 207.20; cns and pns impair, hematologic eff Tipo OEL: Italia: TWA (8h): 0.15 mg/m <sup>3</sup>
<b>Rame (CAS 7440-50-8)</b> Tipo OEL: ACGIH – MW: 63.55; irr, gi, metal fume fever
<b>Selenio (CAS 7782-49-2)</b> Tipo OEL: ACGIH – TWA (8h): 0.2 mg/m <sup>3</sup> ; MW: 78.96; eye and urt irr
<b>Stagno (CAS 7440-31-5)</b> Tipo OEL: ACGIH – TWA (8h): 2 mg/m <sup>3</sup> (l); MW: 118.69; pneumoconiosis
<b>Stirene (CAS 100-42-5)</b> Tipo OEL: ACGIH – TWA (8h): 10 ppm; STEL: 20 ppm; Note: OTO, A3, BEI; MW: 104.15; cns and hearing impair, urt irr, peripheral neuropathy, visual disorders
<b>Talco (CAS 14807-96-6)</b> Tipo OEL: ACGIH – TWA (8h): 2 mg/m <sup>3</sup> (E, R); Note: A4; pulm fibrosis, pulm func.
<b>Tallio (CAS 7440-28-0)</b> Tipo OEL: ACGIH – TWA (8h): 0.02 mg/m <sup>3</sup> (l); Note: skin; MW: 204.37; gi dam, peripheral neuropathy
<b>Tetracloruro di carbonio (CAS 56-23-5)</b> Tipo OEL: UE TWA (8h): 1 ppm, 6.4 mg/m <sup>3</sup> ; STEL: 5 ppm, 32 mg/m <sup>3</sup> (15 minutes average value Bold-type: Indicative Occupational Exposure Limit Value (IOELV)) Tipo OEL: ACGIH – TWA (8h): 5 ppm; STEL: 10 ppm; Note: skin, A2; MW: 153.84; liver dam
<b>Tiram – TMTD (CAS 137-26-8)</b> Tipo OEL: ACGIH – TWA (8h): 0.05 mg/m <sup>3</sup> (IFV); Note: DSEN, A4; MW: 240.44; body weight and hematologic eff
<b>Toluene (CAS 108-88-3)</b> Tipo OEL: UE TWA (8h): 50 ppm, 192 mg/m <sup>3</sup> ; STEL: 100 ppm, 384 mg/m <sup>3</sup> (15 minutes average value Bold-type: Indicative Occupational Exposure Limit Value (IOELV)) Tipo OEL: ACGIH – TWA (8h): 20 ppm; Note: A4, BEI; MW: 92.13; (visual impair, female repro, pregnancy loss) Tipo OEL: Italia: TWA (8h): 50 ppm, 192 mg/m <sup>3</sup>
<b>Tricloroetilene (CAS 79-01-6)</b> Tipo OEL: UE TWA (8h): 10 ppm, 54,7 mg/m <sup>3</sup> (Substantial contribution to the total body burden via dermal exposure possible); STEL: 30 ppm, 164.1 mg/m <sup>3</sup> (Substantial contribution to the total body burden via dermal exposure possible and 15 minutes average value Bold-type: Binding Occupational Exposure Limit Value (BOELV)) Tipo OEL: ACGIH – TWA (8h): 10 ppm; STEL: 25 ppm; Note: A2, BEI; MW: 131.40; cns impair, cognitive decrements, renal toxicity
<b>Tungsteno (CAS 7440-33-7)</b> Tipo OEL: ACGIH – TWA (8h): 3 mg/m <sup>3</sup> (R) MW: 183.84; lung dam
<b>Carbon Black (CAS 1333-86-4)</b> Tipo OEL: ACGIH – TWA(8h): 3 mg/m <sup>3</sup> Note: A3, bronchitis
<b>Ossido di zinco (CAS 1314-13-2)</b> Tipo OEL: ACGIH - TWA(8h): 2 mg/m <sup>3</sup> - STEL: 10 mg/m <sup>3</sup> - Note: (R) - Metal fume fever

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<b>1,2-Dicloroetano (CAS 107-06-2)</b> Tipo OEL: UE TWA(8h): 8,2 mg/m <sup>3</sup> , 2 ppm (Substantial contribution to the total body burden via dermal exposure possible Bold-type: Binding Occupational Exposure Limit Value (BOELV)) Tipo OEL: ACGIH – TWA(8h): 10 ppm – Note: A4, liver dam, nausea
<b>1,2 Dicloropropano (CAS 78-87-5)</b> Tipo OEL: ACGIH – TWA(8h): 10 ppm – Note DSEN, A4; MW 112.99, URT irr, body weight eff
<b>2-(2-Butossietossi)etano (CAS 112-34-5)</b> Tipo OEL: UE TWA (8h): 10 ppm, 67,5 mg/m <sup>3</sup> – STEL: 15 ppm, 101,2 mg/m <sup>3</sup> (15 minutes average value Bold-type: Indicative Occupational Exposure Limit Value (IOELV)) Tipo OEL: ACGIH – TWA (8h): 10 ppm(IFV) – MW: 162.23; Hematologic, liver and kidney eff Tipo OEL: Italia: TWA (8h): 10 ppm, 67,5 mg/m <sup>3</sup> – STEL: 15 ppm, 101,2 mg/m <sup>3</sup>
<b>2,6-di-tert-butil-p-cresolo (CAS 128-37-0)</b> Tipo OEL: ACGIH – TWA(8h): 2 mg/m <sup>3</sup> (IFV) Note: A4 – MW: 220.34; Urt irr
<b>4,4'-isopropiledendifenolo (CAS 80-05-7)</b> Tipo OEL: UE: TWA (8h): 2 mg/m <sup>3</sup> (Inhalable fraction Bold-type: Indicative Occupational Exposure Limit Value (IOELV)) Tipo OEL: Italia: TWA (8h): 10 mg/m <sup>3</sup> (Inhalable fraction)
<b>4-metilpentan-2-one (CAS 108-10-1)</b> Tipo OEL: UE TWA (8h): 20 ppm, 83 mg/m <sup>3</sup> – STEL: 50 ppm, 208 mg/m <sup>3</sup> (15 minutes average value Bold-type: Indicative Occupational Exposure Limit Value (IOELV)) Tipo OEL: ACGIH – TWA (8h): 20 ppm; STEL: 75 ppm; Note: A3, BEI – MW: 100.16; urt irr, dizziness, headache Tipo OEL: Italia: TWA (8h): 20 ppm, 83 mg/m <sup>3</sup> – STEL: 50 ppm, 208 mg/m <sup>3</sup>
<b>Acetonitrile (CAS 75-05-8)</b> Tipo OEL: UE TWA (8h): 40 ppm, 70 mg/m <sup>3</sup> Tipo OEL: ACGIH – TWA (8h): 20 ppm; Note: skin, A4; MW: 41.05 – Irt irr Tipo OEL: Italia: TWA (8h): 20 ppm, 35 mg/m <sup>3</sup>
<b>Acido stearico (CAS 57-11-4)</b> Tipo OEL: ACGIH – TWA (8h): 10 mg/m <sup>3</sup> (l), 3 mg/m <sup>3</sup> (R); Note: A4; MW: varies; Irt irr
<b>Alluminio in polvere (CAS 7429-90-5)</b> Tipo OEL: ACGIH – TWA (8h): 1 mg/m <sup>3</sup> (R); Note: A4; MW: 26.98; pneumoconiosis, Irt irr; MW: varies; neurotoxicity
<b>Antimonio (CAS 7440-36-0)</b> Tipo OEL: ACGIH – TWA (8h): 0.5 mg/m <sup>3</sup> ; MW: 121.75; skin and urt irr
<b>Arsenico (CAS 7440-38-2)</b> Tipo OEL: ACGIH – TWA (8h): 0.01 mg/m <sup>3</sup> ; Note: A1, BEI; MW: 74.92; lung cancer
<b>Bario (CAS 7440-39-3)</b> Tipo OEL: UE TWA (8h): 0.5 mg/m <sup>3</sup> Tipo OEL: ACGIH – TWA (8h): 0,5 mg/m <sup>3</sup> ; Note: A4; MW: 137.30; eye, skin and gi irr, muscular stimulation Tipo OEL: Italia: TWA (8h): 0,5 mg/m <sup>3</sup>
<b>Benzene (CAS 71-43-2)</b> Tipo OEL: UE TWA (8h): 1 ppm, 3.25 mg/m <sup>3</sup> (Substantial contribution to the total body burden via dermal exposure possible Bold-type: Binding Occupational Exposure Limit Value (BOELV)) Tipo OEL: ACGIH – TWA (8h): 0.5 ppm; STEL: 2.5 ppm; Note: skin, A1, BEI; leukemia Tipo OEL: Italia: TWA (8h): 1 ppm, 3.25 mg/m <sup>3</sup>
<b>Benzo(a)antracene (CAS 56-55-3)</b> Tipo OEL: ACGIH – TWA (8h): - (L); Note: A2, BEI <sub>P</sub> ; MW: 228.30; skin cancer
<b>Benzo(a)pirene (CAS 50-32-8)</b> Tipo OEL: ACGIH – TWA (8h): - (L); Note: A2, BEI <sub>P</sub> ; MW: 252.30; cancer
<b>Benzo(e)acefenantrilene (CAS 205-99-2)</b>

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Tipo OEL: ACGIH – TWA (8h): - (L); Note: A2, BEI <sub>P</sub> ; MW: 252.30; cancer
<b>Berillio (CAS 7440-41-7)</b> Tipo OEL: ACGIH – TWA (8h): 0.00005 mg/m <sup>3</sup> (I); Note: A1, skin, DSEN, RSEN; MW: 9.01; beryllium sens, chronic beryllium disease
<b>Bis(2-etilesil)ftalato (CAS 117-81-7)</b> Tipo OEL: ACGIH – TWA (8h): (5 mg/m <sup>3</sup> ); Note: A3; MW: 390.54; (LRT irr)
<b>Cicloesilammia (CAS 108-91-8)</b> Tipo OEL: ACGIH – TWA (8h): 10 ppm; Note: A4; MW: 99.17; urt and eye irr
<b>Crisene (CAS 218-01-9)</b> Tipo OEL: ACGIH – TWA (8h): - (L); Note: A3, BEI <sub>P</sub> ; MW: 228.30; cancer
<b>Cromo (CAS 7440-47-3)</b> Tipo OEL: UE TWA (8h): 2 mg/m <sup>3</sup> Tipo OEL: ACGIH – TWA (8h): 0.5 mg/m <sup>3</sup> ; MW: varies; resp tract irr Tipo OEL: Italia: TWA (8h): 0.5 mg/m <sup>3</sup>
<b>Cromo III (CAS 16065-83-1)</b> Tipo OEL: ACGIH – TWA (8h): 0.003 mg/m <sup>3</sup> (I); Note: A4, DSEN, RSEN; MW: varies; resptract irr, asthma
<b>Cromo VI (CAS 18540-29-9)</b> Tipo OEL: ACGIH – TWA (8h): 0.0002 mg/m <sup>3</sup> ; STEL: 0.0005 mg/m <sup>3</sup> ; Note: A1, skin, DSEN, RSEN, BEI; MW: varies; lung and sinonasal cancer, resp tract irr, asthma
<b>Dibutil ftalato (CAS 84-74-2)</b> Tipo OEL: ACGIH – TWA (8h): 5 mg/m <sup>3</sup> ; MW: 278.34; testicular dam, eye and urt irr
<b>Dietil ftalato (CAS 84-66-2)</b> Tipo OEL: ACGIH – TWA (8h): 5 mg/m <sup>3</sup> ; Note: A4; MW: 222.23; eye and urt irr
<b>Diisocianato di 4-4'-metilendifenile (CAS 101-68-8)</b> Tipo OEL: ACGIH – TWA (8h): 0.005 ppm; MW: 250.26; resp. sens.
<b>Dimetil ftalato (CAS 131-11-3)</b> Tipo OEL: ACGIH – TWA (8h): 5 mg/m <sup>3</sup> ; MW: 194.19; eye and urt irr
<b>Dimetilnitrosammia (CAS 62-75-9)</b> Tipo OEL: ACGIH – TWA (8h): - (L); Note: A3, skin; MW: 74.08; liver and kidney cancer, liver dam
<b>Disolfuro di carbonio (CAS 75-15-0)</b> Tipo OEL: UE TWA (8h): 5 ppm, 15 mg/m <sup>3</sup> Tipo OEL: ACGIH – TWA (8h): 1 ppm; Note: skin, A4, BEI; MW: 76.14; pns impair Tipo OEL: Italia: TWA (8h): 1 ppm, 3 mg/m <sup>3</sup>
<b>Disulfiram (CAS 97-77-8)</b> Tipo OEL: ACGIH – TWA (8h): 2 mg/m <sup>3</sup> ; Note: A4; MW: 296.54; vasodilation, nausea
<b>Etanolo (CAS 64-17-5)</b> Tipo OEL: ACGIH – STEL: 1000 ppm; Note: A3; MW: 46.07; urt irr
<b>Fenolo (CAS 108-95-2)</b> Tipo OEL: UE TWA (8h): 2 ppm, 8 mg/m <sup>3</sup> ; STEL: 4 ppm, 16 mg/m <sup>3</sup> (15 minutes average value Bold-type: Indicative Occupational Exposure Limit Value (IOELV)) Tipo OEL: ACGIH – TWA (8h): 5 ppm; Note: skin, A4, BEI; MW: 94.11; urt irr, lung dam, cns impair Tipo OEL: Italia: TWA (8h): 2 ppm, 8 mg/m <sup>3</sup> ; STEL: 4 ppm, 16 mg/m <sup>3</sup>
<b>Formaldeide (CAS 50-00-0)</b> Tipo OEL: ACGIH – TWA: 0.1 ppm; STEL: 0.3 ppm; Note: DSEN, RSEN, A1; MW: 30.03; urt and eye irr, urt cancer
<b>Manganese (CAS 7439-96-5)</b> Tipo OEL: UE TWA (8h): 0.2 mg/m <sup>3</sup> (Inhalable fraction); 0.05 mg/m <sup>3</sup> (Respirable fraction Bold-type: Indicative Occupational Exposure Limit Value (IOELV)) Tipo OEL: ACGIH – TWA (8h): 0.02 mg/m <sup>3</sup> (R); Note: A4; MW: 54.94; cns impair
<b>Mercurio (CAS 7439-97-6)</b> Tipo OEL: UE TWA (8h): 0.02 mg/m <sup>3</sup> (including mercuric oxide and mercuric chloride Bold-type: Indicative

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Occupational Exposure Limit Value (IOELV) Tipo OEL: ACGIH – TWA (8h): 50.01 mg/m <sup>3</sup> ; STEL: 0.03 mg/m <sup>3</sup> ; Note: skin; MW: varies; cns and pns impair, kidney dam Tipo OEL: Italia: TWA (8h): 0.02 mg/m <sup>3</sup> (skin; when monitoring exposure to mercury and its inorganic divalent compounds, it should taken into account the related techniques of biological monitoring that complete the limit values of occupational exposure)
<b>Metanolo (CAS 6756-1)</b> Tipo OEL: UE TWA (8h): 200 ppm, 260 mg/m <sup>3</sup> Tipo OEL: ACGIH – TWA (8h): 200 ppm; STEL: 250 ppm; Note: skin, BEI; MW: 32.04; headache, eye dam, dizziness, nausea Tipo OEL: Italia: TWA (8h): 200 ppm, 260 mg/m <sup>3</sup>
<b>Molibdeno (CAS 7439-98-7)</b> Tipo OEL: ACGIH – MW: 95.95; lrt irr
<b>Naftalene (CAS 91-20-3)</b> Tipo OEL: ACGIH – TWA (8h): 10 ppm; Note: skin, A3, BEI; MW: 128.19; urt irr, cataracts, hemolytic anemia Tipo OEL: Italia: TWA (8h): 10 ppm, 50 mg/m <sup>3</sup>
<b>Nichel (CAS 7440-02-0)</b> Tipo OEL: ACGIH – TWA (8h): 1.5 mg/m <sup>3</sup> (l); Note: A5; MW: 58.71; dermatitis, pneumoconiosis
<b>N-metil-2-pirrolidone (CAS 872-50-4)</b> Tipo OEL: UE TWA (8h): 10 ppm, 40 mg/m <sup>3</sup> ; STEL: 20 ppm, 80 mg/m <sup>3</sup> (15 minutes average value Bold-type: Indicative Occupational Exposure Limit Value (IOELV)) Tipo OEL: Italia: TWA (8h): 10 ppm, 40 mg/m <sup>3</sup> ; STEL: 20 ppm, 80 mg/m <sup>3</sup> (skin)
<b>Ossido di magnesio (CAS 1309-48-4)</b> Tipo OEL: ACGIH – TWA (8h): 10 mg/m <sup>3</sup> ; Note: A4; MW: 40.32; urt, metal fume fever
<b>Ossido di titanio (CAS 13463-67-7)</b> Tipo OEL: ACGIH – TWA (8h): 10 mg/m <sup>3</sup> ; Note: A4; MW: 79.90; lrt irr
<b>Xileni (isomeri CAS 95-47-6)</b> Tipo OEL: UE TWA (8h): 50 ppm, 221 mg/m <sup>3</sup> ; STEL: 100 ppm, 442 mg/m <sup>3</sup> (15 minutes average value Bold-type: Indicative Occupational Exposure Limit Value (IOELV)) Tipo OEL: ACGIH – TWA (8h): 100 ppm; STEL: 150 ppm; Note: A4, BEI; MW: 106.16; urt and eye irr, cns impair Tipo OEL: Italia: TWA (8h): 50 ppm, 221 mg/m <sup>3</sup> (skin); STEL: 100 ppm, 442 mg/m <sup>3</sup> (skin and 15 minutes average value)
<b>Piombo (CAS 7439-92-1)</b> Tipo OEL: UE TWA (8h): 0.15 mg/m <sup>3</sup> (Inhalable fraction Bold-type: Binding Occupational Exposure Limit Value (BOELV)) Tipo OEL: ACGIH – TWA (8h): 0.05 mg/m <sup>3</sup> ; Note: A3, BEI; MW: 207.20; cns and pns impair, hematologic eff Tipo OEL: Italia: TWA (8h): 0.15 mg/m <sup>3</sup>
<b>Rame (CAS 7440-50-8)</b> Tipo OEL: ACGIH – MW: 63.55; irr, gi, metal fume fever
<b>Selenio (CAS 7782-49-2)</b> Tipo OEL: ACGIH – TWA (8h): 0.2 mg/m <sup>3</sup> ; MW: 78.96; eye and urt irr
<b>Stagno (CAS 7440-31-5)</b> Tipo OEL: ACGIH – TWA (8h): 2 mg/m <sup>3</sup> (l); MW: 118.69; pneumoconiosis
<b>Stirene (CAS 100-42-5)</b> Tipo OEL: ACGIH – TWA (8h): 10 ppm; STEL: 20 ppm; Note: OTO, A3, BEI; MW: 104.15; cns and hearing impair, urt irr, peripheral neuropathy, visual disorders
<b>Talco (CAS 14807-96-6)</b> Tipo OEL: ACGIH – TWA (8h): 2 mg/m <sup>3</sup> (E, R); Note: A4; pulm fibrosis, pulm func.

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<b>Tallio (CAS 7440-28-0)</b> Tipo OEL: ACGIH – TWA (8h): 0.02 mg/m <sup>3</sup> (l); Note: skin; MW: 204.37; gi dam, peripheral neuropathy
<b>Tetracloruro di carbonio (CAS 56-23-5)</b> Tipo OEL: UE TWA (8h): 1 ppm, 6.4 mg/m <sup>3</sup> ; STEL: 5 ppm, 32 mg/m <sup>3</sup> (15 minutes average value Bold-type: Indicative Occupational Exposure Limit Value (IOELV)) Tipo OEL: ACGIH – TWA (8h): 5 ppm; STEL: 10 ppm; Note: skin, A2; MW: 153.84; liver dam
<b>Tiram – TMTD (CAS 137-26-8)</b> Tipo OEL: ACGIH – TWA (8h): 0.05 mg/m <sup>3</sup> (IFV); Note: DSEN, A4; MW: 240.44; body weight and hematologic eff
<b>Toluene (CAS 108-88-3)</b> Tipo OEL: UE TWA (8h): 50 ppm, 192 mg/m <sup>3</sup> ; STEL: 100 ppm, 384 mg/m <sup>3</sup> (15 minutes average value Bold-type: Indicative Occupational Exposure Limit Value (IOELV)) Tipo OEL: ACGIH – TWA (8h): 20 ppm; Note: A4, BEI; MW: 92.13; (visual impair, female repro, pregnancy loss) Tipo OEL: Italia: TWA (8h): 50 ppm, 192 mg/m <sup>3</sup>
<b>Tricloroetilene (CAS 79-01-6)</b> Tipo OEL: UE TWA (8h): 10 ppm, 54,7 mg/m <sup>3</sup> (Substantial contribution to the total body burden via dermal exposure possible); STEL: 30 ppm, 164.1 mg/m <sup>3</sup> (Substantial contribution to the total body burden via dermal exposure possible and 15 minutes average value Bold-type: Binding Occupational Exposure Limit Value (BOELV)) Tipo OEL: ACGIH – TWA (8h): 10 ppm; STEL: 25 ppm; Note: A2, BEI; MW: 131.40; cns impair, cognitive decrements, renal toxicity
<b>Tungsteno (CAS 7440-33-7)</b> Tipo OEL: ACGIH – TWA (8h): 3 mg/m <sup>3</sup> (R) MW: 183.84; lung dam

The occupational exposure limit values set by the ACGIH (2020 Edition) and the GESTIS on hazardous substances (IFA, Institute for Occupational Safety and Health of German Social Accident Insurance) database were taken into consideration. The values listed refer only to Italy and the European Union.

The use of standardized methods is recommended for monitoring these values.

### 8.2. Exposure controls

**Eye protection:** wear protection goggles during processes that produce powders.

**Skin protection:** wear clothing that protect completely the skin.

**Hand protection:** during handling operations, use protective gloves.

**Respiratory protection:** during processes that produce powders, use suitable protection equipment (filter mask at least FFP1).

**Thermal risks:** none currently known.

**Environmental exposure controls:** the process water must be conveyed into filter systems for the collection of material with variable particle size.

**Appropriate technical controls:** minimize exposure to dust: check periodically ventilation and aspiration in the work place.

## Section 9: physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Property	Value	Method:	Notes
Appearance and colour:	Granular green material	Visual	--
Physical state:	Solid	Visual	--

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Granulometry:	0.8 – 2.5 mm	UNI EN 14243:2019	
Odour:	N.A.	--	--
Odour threshold:	N.A.	--	--
pH:	7.3 – 7.9	pH scale	--
Melting point / freezing point:	N.A.	--	--
Initial boiling point and boiling range:	N.A.	--	--
Flash point:	N.A.	--	--
Evaporation rate:	N.A.	--	--
Solid/gas flammability:	N.A.	--	--
Upper/lower flammability or explosive limits:	N.A.	--	--
Vapour pressure:	N.A.	--	--
Vapour density:	N.A.	--	--
Relative density:	0.3 – 0.7 g/cm <sup>3</sup>	UNI EN 1097-3:1999	--
Solubility in water:	N.A.	--	--
Solubility in oil:	N.A.	--	--
Partition coefficient (n-octanol/water):	N.A.	--	--
Auto-ignition temperature:	N.A.	--	--
Decomposition temperature:	N.A.	--	--
Viscosity:	N.A.	--	--
Explosive properties:	N.A.	--	--
Oxidizing properties:	N.A.	--	--

### 9.2. Other information

Property	Value	Method:	Notes
Miscibility:	N.A.	--	--
Fat Solubility:	N.A.	--	--
Conductivity:	N.A.	--	--
Substance Groups relevant properties	N.A.	--	--

## Section 10: stability and reactivity

### 10.1. Reactivity

Not reactive.

### 10.2. Chemical stability

Stable under all ordinary circumstances and under normal conditions of use.

### 10.3. Possibility of hazardous reactions

None known.

### 10.4. Conditions to avoid

Keep away from ignition sources.

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### 10.5. Incompatible materials

None known.

### 10.6. Hazardous decomposition products

None known.

## Section 11: toxicological information

### 11.1. Information on toxicological effects

#### Toxicological information of the product Gommamica® Powerfill green 2:

**a) acute toxicity:** based on available data, the classification criteria are not met; in literature, there are no data on tests, performed on animals and men, aimed at evaluating the consequences of acute toxicity for this mixture. Data regarding test performed directly on mixture are not available.

Some substances classified in the acute toxicity class via skin, by mouth and by inhalation are contained in the mixture but their concentrations are lower than the limit value to be considered relevant for classification; moreover, the mixture incorporates these substances in the polymer matrix and it's not expected that that substances contribute to the overall effects of the mixture on health.

**b) skin corrosion/irritation:** based on available data, the classification criteria are not met; in literature, there are no data on tests, performed aimed at evaluating the skin corrosion/irritation for this mixture. Data regarding test performed directly on mixture are not available.

Sulphur (CAS 7704-34-9) is contained in the mixture: this substance is classified as a skin irritant cat. 2 in a concentration such as to be considered in the classification of the mixture but its amount is lower than the limit which classifies the mixture itself as skin irritant.

**c) serious eye damage/irritation:** based on available data, the classification criteria are not met; in literature, there are no data on tests, performed aimed at evaluating serious eye damage/irritation for this mixture. Data regarding test performed directly on mixture are not available.

Some substances classified in the serious eye damage/irritation class are contained in the mixture but their concentrations are lower than the limit value to be considered relevant for classification; moreover, the mixture incorporates these substances in the polymer matrix and it's not expected that that substances contribute to the overall effects of the mixture on health.

**d) respiratory or skin sensititation:** based on available data, the classification criteria are not met; in literature, there are no data on tests, performed aimed at evaluating respiratory or skin sensititation for this mixture. Data regarding test performed directly on mixture are not available.

Substances classified as respiratory sensititation are not contained in the mixture so these effects are not expected for this mixture.

Some substances classified in skin sensititation class are contained in the mixture but their concentrations are lower than the limit value to be considered relevant for classification; moreover, the mixture incorporates these substances in the polymer matrix and it's not expected that that substances contribute to the overall effects of the mixture on health.

**e) germ cell mutagenicity:** data regarding test performed directly on mixture are not available.

Some substances classified in germ cell mutagenicity class are contained in the mixture but their concentrations are lower than the limit value to be considered relevant for classification; moreover, the mixture incorporates these substances in the polymer matrix and it's not expected that that substances contribute to the overall effects of the mixture on health.

Data about germ cell mutagenicity of rubber granulate from end-of-life tyres are available in literature (*Toxicological evaluation for the hazard assessment of tire crumb for use in public playgrounds*).

**f) carcinogenicity:** based on available data, the classification criteria are not met; in literature, there are no data on tests, performed aimed at evaluating carcinogenicity for this mixture. Data regarding test performed directly on mixture are not available.

Some substances classified in carcinogenicity class are contained in the mixture but their concentrations are lower than the limit value to be considered relevant for classification; moreover, the mixture incorporates these substances in the polymer matrix and it's not expected that that substances contribute to the overall effects of the mixture on health.

**g) reproductive toxicity:** based on available data, the classification criteria are not met; in literature, there are no data on tests, performed aimed at evaluating reproductive toxicity for this mixture. Data regarding test

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performed directly on mixture are not available.

Some substances classified in reproductive toxicity class are contained in the mixture but their concentrations are lower than the limit value to be considered relevant for classification; moreover, the mixture incorporates these substances in the polymer matrix and it's not expected that that substances contribute to the overall effects of the mixture on health.

**h) STOT — single exposure:** based on available data, the classification criteria are not met; in literature, there are no data on tests, performed aimed at evaluating specific target organ toxicity (single exposure) for this mixture. Data regarding test performed directly on mixture are not available.

Some substances classified in specific target organ toxicity (single exposure) class are contained in the mixture but their concentrations are lower than the limit value to be considered relevant for classification; moreover, the mixture incorporates these substances in the polymer matrix and it's not expected that that substances contribute to the overall effects of the mixture on health.

**i) STOT — repeated exposure:** based on available data, the classification criteria are not met; in literature, there are no data on tests, performed aimed at evaluating specific target organ toxicity (repeated exposure) for this mixture. Data regarding test performed directly on mixture are not available.

Some substances classified in specific target organ toxicity (repeated exposure) class are contained in the mixture but their concentrations are lower than the limit value to be considered relevant for classification; moreover, the mixture incorporates these substances in the polymer matrix and it's not expected that that substances contribute to the overall effects of the mixture on health.

**j) aspiration hazard:** based on available data, the classification criteria are not met; in literature, there are no data on tests, performed aimed at evaluating aspiration hazard for this mixture. Data regarding test performed directly on mixture are not available.

## Section 12: ecological information

### 12.1. Toxicity

Based on available data mixture is not classified as dangerous for the aquatic environment according to Reg. (CE) n. 1272/2008.

Cobalt sulphide (CAS 1317-42-6) is contained in the mixture: it is classified as toxic for aquatic organisms. Cobalt sulphide is present in the mixture in concentration that have to be considered for classification of mixture itself but its concentration is lower than the limit value to be considered relevant for classification of the mixture as toxic for aquatic environment.

In literature, following data are available for cobalt sulphide (CAS 1317-42-6) (source infocard echa):

#### **Cobalt sulphide (CAS 1317-42-6)**

**Short-term toxicity to fish:** LC50 for freshwater fish 1.5 mg/L

**Long-term toxicity to fish:** EC10 / LC10 or NOEC for freshwater fish 351.4 µg/L; EC10 / LC10 or NOEC for marine water fish 31.802 mg/L

**Short-term toxicity to aquatic invertebrates:** EC50 / LC50 for freshwater invertebrates 610 µg/L; EC50 / LC50 for marine invertebrates 2.32 mg/L

**Long-term toxicity to aquatic invertebrates:** EC10 / LC10 or NOEC for freshwater invertebrates 7.55 µg/L; EC10 / LC10 or NOEC for marine invertebrates 206 µg/L

**Toxicity to aquatic algae and cyanobacteria:** EC50 for freshwater algae 197 µg/L; EC50 for marine water algae 24.1 µg/L; EC10 or NOEC for freshwater algae 66.9 µg/L; EC10 or NOEC for marine water algae 1.23 µg/L

**Toxicity to aquatic plants other than algae:** EC50 for freshwater plants 52 µg/L; EC10 or NOEC for freshwater plants 10.4 µg/L

**Toxicity to microorganisms:** EC50 for microorganisms 120 mg/L; EC10 or NOEC for microorganisms 3.73 mg/L

**Sediment toxicity:** EC50 / LC50 for freshwater sediment 1 703 mg/kg sediment dw; EC10 / LC10 or NOEC for freshwater sediment 698 mg/kg sediment dw

Toxicological test data are available in literature; these tests were performed on products similar to the mixture described in this safety data sheet. As sample:

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- Acute aquatic toxicity of tire and road wear particles to alga, daphnid, and fish (Britt McAtee et al. 2011).

### 12.2. Persistence and degradability

Specific studies are not available on the possibility that the mixture will degrade in the environment through photolysis, hydrolysis or other processes.

In literature, about substances contained in the mixture, following data are available:

Substance	Persistence and degradability (source infocard echa)
Carbon black (CAS 1333-86-4):	Not biodegradable, insoluble in water and not reactive by hydrolysis. Not degradable by light and reactive species by photodegradation in air or in surface water.
Silicon dioxide – Silica (CAS 7631-86-9)	Unpredictable photodegradation or chemical degradation. Hydrolysis to a lesser extent, not yet quantifiable, is limited to a layer of gel that surrounds the particle in an aqueous medium. Biodegradation is not applicable to these inorganic substances.
Distillates (petroleum), solvent-dewaxed heavy paraffinic (CAS 64742-65-0)	These compounds are resistant to hydrolysis because they don't have a functional group. It contains hydrocarbon molecules that absorb UV light below 290 nm, a range of UV light that does not reach the earth's surface. Therefore, this substance does not have potential to undergo photolysis in water and soil; this process is not expected to contribute to a measurable degradable loss of substance in the environment. Studies have shown that substance is not easily biodegradable (2-4% in 28 days, BP Limited International 1990; 31.13%, Exxon 1995).
Distillates (petroleum), hydrotreated heavy paraffinic (CAS 64742-54-7)	
Distillates (petroleum), solvent-refined heavy paraffinic (CAS 64741-88-4)	
Distillates (petroleum), hydrotreated heavy naphthenic (CAS 64742-52-5)	
Extracts (petroleum), solvent-refined heavy paraffinic distillate solvent (CAS 68783-04-0)	These compounds are resistant to hydrolysis because they don't have a functional group. It contains hydrocarbon molecules that absorb UV light below 290 nm, a range of UV light that does not reach the earth's surface. Therefore, this substance does not have potential to undergo photolysis in water and soil; this process is not expected to contribute to a measurable degradable loss of substance in the environment. The degradation half-lives calculated for the components of this substances vary between 2.75 and 661986 days in water and sediments and between 2.75 and 165496 days on the ground. This is the entire range of expected values and it could be not representative of the properties of the UVCB substance as a whole.
Sulphur (CAS 7704-34-9)	It is a substance highly insoluble in water so it is not necessary to conduct hydrolysis tests. Test for air transformation evaluation showed that half-life is 4.25h even if it is illuminated with 80000 lux at 25°C. after 1.15h, it remained unchanged (unnamed, 1991). Not biodegradable substance
Zinc sulphide (CAS 1314-98-3)	It is an inorganic substance so tests to evaluate hydrolysis, photo-transformation in air, water, soil and biodegradation are not applicable.

### 12.3. Bioaccumulative potential

Specific studies are not available on the mixture.

In literature, about substances contained in the mixture, following data are available:

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Substance	Bioaccumulative potential (source infocard echa)
Carbon black (CAS 1333-86-4):	Based on physico-chemical properties it is an inert solid so, for its stability and insolubility, it is not predictable its spread to aquatic, terrestrial and sediment organisms.
Silicon dioxide – Silica (CAS 7631-86-9)	Due to its intrinsic chemical-physical propertie, such as the absence of lipophilicity and the body's ability to expel the absorbed SiO <sub>2</sub> components, bioaccumulation can be excluded. However, silica can be actively accumulated by land plants and some marine organisms which represents a normal natural process.
Distillates (petroleum), solvent-dewaxed heavy paraffinic (CAS 64742-65-0)	Standard tests to evaluate bioaccumulation are not appropriate because it is a UVCB substance belonging to the hydrocarbon family.
Distillates (petroleum), hydrotreated heavy paraffinic (CAS 64742-54-7)	Standard tests to evaluate bioaccumulation are not appropriate because it is a UVCB substance belonging to the hydrocarbon family. The BCF calculated for the components of this substance is between 0.4 and 71100 l/Kg. This is the full range of expected values and it could be not representative of the properties of the UVCB substance as a whole.
Distillates (petroleum), hydrotreated heavy naphthenic (CAS 64742-52-5)	Standard tests to evaluate bioaccumulation are not appropriate because it is a UVCB substance belonging to the hydrocarbon family.
Distillates (petroleum), solvent-refined heavy paraffinic (CAS 64741-88-4)	Standard tests to evaluate bioaccumulation are not appropriate because it is a UVCB substance belonging to the hydrocarbon family. The BCF calculated for the components of this substance is between 0.4 and 71100 l/Kg. This is the full range of expected values and it could be not representative of the properties of the UVCB substance as a whole.
Extracts (petroleum), solvent-refined heavy paraffinic distillate solvent (CAS 68783-04-0)	Standard tests to evaluate bioaccumulation are not appropriate because it is a UVCB substance belonging to the hydrocarbon family. The BCF calculated for the components of this substance is between 0.4 and 71100 l/Kg. This is the full range of expected values and it could be not representative of the properties of the UVCB substance as a whole.
Sulphur (CAS 7704-34-9)	Inorganic substance with no significant bioaccumulation potential.
Zinc sulphide (CAS 1314-98-3)	In a study, high BCF values were observed at lower zinc exposure levels, which it is attributable to the fact that organisms concentrate zinc to meet internal physiological needs. For the same reason as homeostasis, BCF will decrease when exposure concentrations increase. This is, in general, a negative result for the relationship between BCF and exposure (McGeer et al 2003). Regarding bioaccumulation, the EU risk assessment report (ECB 2008) concludes that "it was concluded that secondary poisoning is not considered relevant in the assessment of the effects of zinc".

## 12.4. Mobility in soil

Specific studies are not available on the mixture.

In literature, about substances contained in the mixture, following data are available:

Substance	Mobility in soil (source infocard echa)
Carbon black (CAS 1333-86-4):	It is insoluble in all organic solvents and its vapor pressure is negligible. Relevant parameters for environment distribution, such as water solubility, octanol/water partition coefficient, dissociation constant or adsorption/desorption constant, cannot be measured

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	analytically in water or in organic solvents, such as octanol due to insolubility and vapour pressure negligible so it is not expected to spread in air or in water in significant quantities. The only relevant distribution compartment in environment is deposition on the ground and on sediments.
Silicon dioxide – Silica (CAS 7631-86-9)	In environmental conditions, due to its chemical nature and intrinsic physical properties, it is not volatile. Due to its low water solubility and very low vapour pressure, it should be distributed mainly in soils/sediments, weakly in the water and probably not in the air at all.
Distillates (petroleum), solvent-dewaxed heavy paraffinic (CAS 64742-65-0)	Standard tests to evaluate adsorption/desorption are not appropriate because it is a UVCB substance belonging to the hydrocarbon family. Substance distribution in the environmental compartments (air, water, soil and sediments) was calculated using PETRORISK model. Based on the regional exposure assessment, the multimedia distribution of the substance is 39.93% in air, 3.98% in water, 34.01% in sediment and 22.09% in soil.
Distillates (petroleum), hydrotreated heavy paraffinic (CAS 64742-54-7)	
Distillates (petroleum), hydrotreated heavy naphthenic (CAS 64742-52-5)	
Distillates (petroleum), solvent-refined heavy paraffinic (CAS 64741-88-4)	Standard tests to evaluate adsorption/desorption are not appropriate because it is a UVCB substance belonging to the hydrocarbon family. The log Koc calculated for the components of this substance is between 1.71 and 14.70. This is the full range of expected values and it could be not representative of the properties of the UVCB substance as a whole.
Extracts (petroleum), solvent-refined heavy paraffinic distillate solvent (CAS 68783-04-0)	Standard tests to evaluate adsorption/desorption are not appropriate because it is a UVCB substance belonging to the hydrocarbon family. The log Koc calculated for the components of this substance is between 3.62 and 14.70. This is the full range of expected values and it could be not representative of the properties of the UVCB substance as a whole.
Sulphur (CAS 7704-34-9)	Inorganic substance with no significant adsorption potential.
Zinc sulphide (CAS 1314-98-3)	Adsorption/desorption, for metals means distribution of them between the different fractions of the environmental sector, e.g. water (dissolved fraction, fraction linked to suspended matter), soil (fraction linked or complexed to soil particles, fraction in the water of the soil pores, etc.). This distribution corresponds to the distribution coefficients between these different fractions. Zinc partition coefficients in fresh water were reviewed in the risk assessment report RAR (ECB 2008). Based on these experimental tests, for EU waters has been defined a partition distribution coefficient between solid particulate matter and water (Kpsusp) of 5.04. It has been used throughout the RAR. The Kp for the distribution between sediment and water (Kpsed) was estimate, in RAR, from that for particulate matter equal to 73.000 l/Kg (ECB 2008). For sea water, it was derived a suspended water/matter coefficient of 6010 l/Kg. For soil, a solid-water partition coefficient was determined experimentally on 11 American soils in 158.5 l/Kg (log value 2.2). this value was used in the zinc RAR.

### 12.5. Results of PBT and vPvB assessment

Mixture contains substances PBT and vPvB but none of them in concentration greater than 0.1%

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### 12.6. Other adverse effects

None known.

## Section 13: disposal considerations

### 13.1. Waste treatment methods

Recover if possible otherwise send the material to authorized disposal plants, comply with the local and national regulations currently in force.

## Section 14: transport information

### 14.1. UN number:

Not classified as dangerous in the meaning of transport regulations.

### 14.2. UN proper shipping name

N.A.

### 14.3. Transport hazard class(es)

N.A.

### 14.4. Packing group

N.A.

### 14.5. Environmental hazards

N.A.

### 14.6. Special precautions for user

During loading and unloading operation use the same precautions described in section 7.

### 14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

N.A.

## Section 15: regulatory information

### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

#### UE legislation:

- Reg. (EC) n. 1907/2006 (REACH)
- Reg. (EC) n. 1272/2008 (CLP)
- Dir. (EU) 2008/98/CE relating to waste
- Dir. (EU) 2018/851 of 2018/05/30 amending Directive 2008/98/EC on waste
- Dir. (EU) 2018/852 of 2018/05/30 amending Directive 94/62/EC on packaging and packaging waste.
- Reg. (EU) 2016/425 of the European Parliament and of the Council of 2016/03/09 on personal protective equipment
- Reg. (EC) N. 440/2008 of the Commission, of 2008/05/30, establishing test methods pursuant to Regulation (EC) no. 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorization and Restriction of Chemical Substances (REACH)
- Reg. (EU) N. 2021/1199 of 2021/07/20, which modifies Annex XVII regarding the content of IPA in infill granules in sports fields or in loose form in playgrounds
- Commission Regulation (EU) 2023/2055 of 2023/09/25 amends Annex XVII of Regulation (EC) no. 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) with regard to synthetic polymer microparticles

#### Restrictions of use:

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- Restriction 50 Annex VII Reg. (CE) n. 1907/2006 point 5 and point 6

### Italian legislation:

- D. Lgs. 3-4-2006 n. 152 – Norms on environmental matters
- D.lgs. 9 april 2008, n. 81 Consolidated Law on Health and Safety at Work
- D.M. 5 february 1998 Identification of non-hazardous waste subjected to simplified recovery procedures pursuant to articles 31 and 33 of legislative decree of 1997/02/05, n. 22.

### 15.2. Chemical safety assessment

No chemical safety assessment has been carried out for the mixture.

In accordance with article 2, paragraph 7, letter b) of EC Regulation no. 1907/2006 and subsequent amendments, the product is exempted from the application of the provisions of titles II, V, VI of the same regulation. Since the obligation to carry out the chemical safety assessment is determined by Article 14 Title II of the aforementioned Regulation, the product is exempted from this obligation.

## Section 16: other information

This safety data sheet is in revision 4 and has been drawn up in compliance with Reg. (CE) n. 1907/2006.

Classification and procedure used to derive it are according to Reg. (EC) n. 1272/2008 in relation to mixture: not dangerous.

### Acronyms and abbreviations:

ACGIH	American Conference of Governmental Industrial Hygienists
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
BCF	Bioconcentration factor
CAS	Chemical Abstracts Service number
CER	European waste code
CLP	Classification, Labelling and Packaging Regulation
DNEL	Derived No Effect Level
EC50	Effect concentration 50% of sample
ECHA	European Chemicals Agency
GLP	Good laboratory practice
IATA DGR	International Air Transport Association Dangerous Goods Regulations
IMDG Code	International Maritime Dangerous Goods Code
PAH	Polycyclic aromatic hydrocarbons
LC50	Lethal concentration 50%
N/A	non applicable
n.d.	non aviable
NIOSH	National Institute for Occupational Safety and Health
NOAEC	No Observed Adverse Effect Concentration
OECD	Organisation for Economic Co-operation and Development
ONU	United Nations organization
OSHA	Occupational Safety and Health Administration
PBT	Perisistent, bioaccumulative and toxic substance
PFU	End-of-life tyres
PNEC	Predicted No Effect Concentration
PNOC	Particles not otherwise classifiable
RAR	Risk Assessment Report
REACH	Registration, Evaluation, Authorisation, Restriction of Chemicals
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
STOT RE	Specific target organ toxicity – Repeated exposure
STOT SE	Specific target organ toxicity – Single exposure
SU	Sector of use
TLV	Threshold Limit Values
TWA	Time Weighted Average
UVCB	unknown or variable composition, complex reaction products or of biological materials

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vPvB Very persistent, very bioaccumulative and very toxic substance

### Full text of phrases referred to in section 3:

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H319 Causes serious eye irritation.

H332 Harmful if inhaled.

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H335 May cause respiratory irritation.

H350 May cause cancer.

H351 Suspected of causing cancer.

H373 May cause damage to organs through prolonged or repeated exposure.

H400 Very toxic to aquatic life.

H410 Very toxic to aquatic life with long lasting effects.

Hazard class and hazard category	Code	Description
Skin Irrit. 2	3.2/2	Skin irritation, Cat. 2
Skin Sens. 1	3.4 2/1	Sensibilizzazione della pelle, Categoria 1
Carc. 1B	3.6/1B	Cancerogenicity, Cat. 1B
Aquatic Acute 1	4.1/A1	Acute aquatic hazard, category 1
Aquatic Chronic 1	4.1/C1	Chronic (long term) aquatic hazard, category 1
Resp. Sens. 1	3.4 1/1	Sensibilizzazione delle vie respiratorie, Categoria 1
Acute Tox. 4	3.1/4 Inhal	Tossicità acuta per inalazione, Categoria 4
Eye Irr. 2	3.3/2	Irritazione oculare, Categoria 2
Carc. 2	3.6/2	Cancerogenicità, Categoria 2
STOT SE 3	3.8/3	Tossicità specifica per organi bersaglio – esposizione singola, Categoria 3
STOT RE 2	3.9/2	Tossicità specifica per organi bersaglio – esposizione ripetuta, Categoria 2

### Bibliography and data sources:

ECHA website: European Chemicals Agency

Gestis database on hazardous substances (IFA, Institute for Occupational Safety and Health of German Social Accident Insurance).

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